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HDG schemes for stationary convection-diffusion problems

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Abstract

© Published under licence by IOP Publishing Ltd.For stationary linear convection-diffusion problems, we construct and study a hybridized scheme of the discontinuous Galerkin method on the basis of an extended mixed statement of the problem. Discrete schemes can be used for the solution of equations degenerating in the leading part and are stated via approximations to the solution of the problem, its gradient, the flow, and the restriction of the solution to the boundaries of elements. For the spaces of finite elements, we represent minimal conditions responsible for the solvability, stability and accuracy of the schemes.

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